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***End of Year Review:* 2007 Saw Significant Progress for NASA Cleanup at JPL**

The year 2007 marked both significant accomplishment and progress for the NASA environmental cleanup at and near the Jet Propulsion Laboratory (JPL).

City Enters Permitting Phase for Pasadena Groundwater Treatment Plant

A NASA Interim Record of Decision, approved in 2007 by federal and state regulatory agencies, represented a major milestone for the cleanup. This approval allows the City of Pasadena to proceed with the permitting process on a proposed 7,000 gallons-per-minute (gpm) NASA-funded groundwater treatment plant at the Windsor Reservoir.

If permitted and then constructed, the treatment facility would be located at roughly the mid-point of the area of groundwater chemicals originating from long-discontinued waste management practices at JPL. The treatment plant would use a liquid-phase granular activated carbon process to remove volatile organic compounds from the groundwater and an ion exchange process, similar to a water softening system, to remove perchlorate.

NASA Funding Continues for Groundwater Treatment Near Two Lincoln Avenue Water Company Wells

Approval of NASA's Interim Record of Decision also allows continued NASA funding of a 2,000-gpm treatment facility that has been operating in Altadena since July 2004 near two Lincoln Avenue Water Company drinking water wells at the outer edge of the groundwater chemical plume. This facility's effectiveness bodes well for the larger, proposed plant at Pasadena's Windsor Reservoir, because it successfully uses the same combination of chemical-removing technologies that would be used in Pasadena.

Source Area Groundwater Treatment Plant Reaches Full Capability

As 2007 drew to a close, expansion of the NASA source-area groundwater treatment system located on-site at JPL was complete and the system was undergoing final "shakedown" tests. The original system has been operating since January 2005 at a rate of about 150 gpm, using two wells to extract groundwater from beneath JPL and two wells to re-inject clean, treated water into the aquifer. In 2007 NASA added a third extraction well and injection well, enabling the system to more than double the amount of water it can treat. The plant will now operate at approximately 350 gpm capacity, using liquid-phase granular activated carbon technology to remove volatile organic compounds from the water and a perchlorate-removing "fluidized bed reactor" employing a biological technology that was pilot-tested on-site and proven for the JPL environment.

NASA Treatment Strategy Progressing to Full Execution

With treatment plants at the source area and at the outer edge – and soon at the mid-point of the groundwater chemicals – NASA's comprehensive and aggressive treatment strategy is now nearing full execution. The source area treatment system is at full capacity addressing the area with the highest chemical concentrations and ensuring that those chemicals will not move off of the JPL facility; the Lincoln Avenue Water Company system is effectively preventing further movement of chemicals and protecting groundwater resources to the south and east; and the proposed Pasadena system, if implemented, would provide groundwater cleanup of the area in the middle, roughly halfway between the source and the furthest reaches of the chemicals.

Soil Cleanup Activities Completed at JPL

With California and federal regulatory agencies' approvals in 2007, NASA officially completed a major soil cleanup project at JPL. About 230 pounds of carbon tetrachloride and 30 pounds of trichloroethylene were removed from the soil directly beneath JPL in a process called soil vapor extraction.

In cleaning up on-site soil so dramatically, NASA is meeting one of its key goals – the prevention of further chemical movement into the groundwater aquifer hundreds of feet further below the surface.

Public Outreach/Community Involvement Effort Continued in 2007

To build on community involvement with the cleanup project, NASA sponsored two community information sessions in February 2007 and again participated in the annual JPL Open House held in May. The community information sessions were held on consecutive February evenings at the Maranatha High School in Pasadena and at the Altadena Public Library and included displays defining the extent of chemicals from JPL and the four studies conducted for that purpose. NASA also published four fact sheets in 2007 explaining those studies. In December, NASA changed the look of its Project Update newsletter in an effort to get more attention and readership, by publishing a full-color, illustrated, six-page bilingual newsletter. Throughout the year, NASA Cleanup Project Manager Steve Slaten and NASA Manager for Community Involvement Merrilee Fellows participated in a number of community forums, lead tours and responded to dozens of comments and questions from the public. At the end of the year, NASA was active in notifying residents of pipeline inspection fieldwork that would be affecting traffic flow in their neighborhood near the site of the proposed Windsor Reservoir treatment plant.

Other NASA activities during 2007 included continuation of an extensive groundwater monitoring effort, ongoing updates of NASA's groundwater cleanup Website – http://jplwater.nasa.gov – and the Website's "Media Room," which carries the latest cleanup information and background materials for news reporters and others in the media.

2007 NASA Environmental Cleanup Statistics

- **On-site Source Area Treatment Plant –** NASA's source area treatment plant has already removed – even before its expansion to full capacity – more than 850 pounds of perchlorate and 25 pounds of volatile organic compounds from groundwater beneath JPL. As groundwater chemicals are removed at the source area, and with JPL soil cleanup activities at the source area now complete, the concentration of chemicals in groundwater beneath JPL has been reduced and the contribution of those chemicals to off-facility groundwater is thus prevented.

- **Lincoln Avenue Water Company Treatment Plant –** NASA groundwater monitoring wells suggest that the LAWC treatment plant, at the outer edge of the groundwater chemicals, is preventing those chemicals from moving any further from JPL. The monitoring well southeast of the treatment plant has not had any detections of target chemicals since treatment plant operations began in July 2004. A total of 350 pounds of perchlorate and 109 pounds of volatile organic compounds (VOCs) have been removed from groundwater at the Lincoln Avenue Water Company (LAWC) plant since the perchlorate removal system was added to an existing VOC-removal system in July 2004. Since 1990, more than 500 pounds of VOCs have been removed from groundwater at the LAWC site.

For More Information

More information about the NASA Groundwater Cleanup Project at JPL is available on our Website http://jplwater.nasa.gov and at the NASA Information Repositories located in the Pasadena Central Library, the La Cañada Flintridge Public Library, and the Altadena Public Library.

For Questions and Comments

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For more information about NASA's Groundwater Cleanup Program at JPL, visit:

http://jplwater.nasa.gov

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